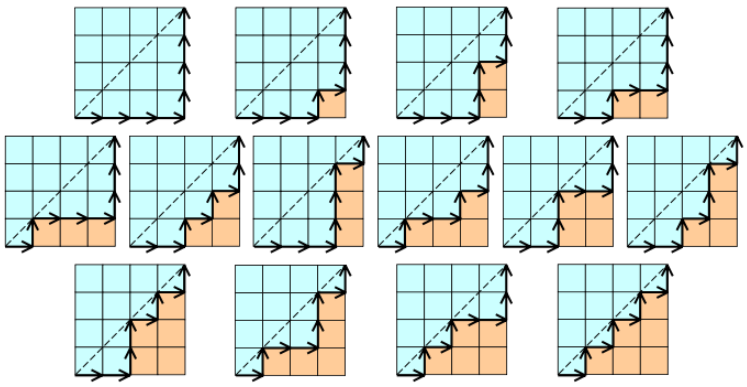
Sub-Diagonal Paths (prob2)

The Problem

You are to find all of the paths on the bottom diagonal of a n x n grid. The path must only go from left-to-right or bottom-to-top. Given a dimension of the grid (ex. n = 4), specify the number of such paths (ex. solution = 14). (Image below is from Wikipedia):



Input

The input consists of a single integer n, the dimension of the square grid, 1 <= n <= 30, on each line. A zero will indicate the end of the input and should not be processed.

Output

For each input n, you should output the number of paths, as described above, that exist in an nxn grid, one per line.

Sample Input

```
1
2
3
4
0
```

Sample Output

```
1
2
5
14
```